

**CLAIM AMENDMENTS**

**In the claims:**

- Claim 1. (Previously Presented) A method of reducing photoaging in a mammal, comprising administering to the epidermis of the mammal a composition comprising an effective amount of at least one DNA oligonucleotide, wherein said oligonucleotide is approximately 2-200 nucleotides in length, and wherein the oligonucleotide comprises a phosphodiester backbone.
- Claim 2. (Previously Presented) The method of Claim 1, wherein said oligonucleotide consists of a nucleotide sequence or a portion of a sequence selected from the group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 6, 8 and 11.
- Claim 3. (Original) The method of Claim 1, wherein said oligonucleotide is single-stranded.
- Claim 4. (Previously Presented) The method of Claim 1, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 5. (Original) The method of Claim 1, wherein said oligonucleotide is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 6. (Previously Presented) The method of Claim 1, wherein the oligonucleotide comprises a physiologically acceptable carrier.
- Claim 7. (Previously Presented) A method of increasing melanin production in epidermal melanocytes of a mammal, said method comprising topically administering to said epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:5, SEQ ID NO:3, or SEQ ID NO: 11.

- Claim 8. (Previously Presented) The method of Claim 7, wherein said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 5 or a portion thereof.
- Claim 9. (Original) The method of Claim 7, wherein the oligonucleotide is single-stranded.
- Claim 10. (Original) The method of Claim 7, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 11. (Original) The method of Claim 7, wherein the oligonucleotide is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 12. (Cancelled)
- Claim 13. (Previously Presented) The method of Claim 7, wherein the composition comprises a physiologically acceptable carrier.
- Claim 14. (Previously Presented) A method of increasing melanin production in epidermal melanocytes of a mammal, comprising topically administering the epidermal melanocytes an effective amount of at least one oligonucleotide having a phosphodiester backbone, wherein the oligonucleotide consists of at least one sequence selected from the group consisting of: pTpT, SEQ ID NO: 1, SEQ ID NO:3, SEQ ID NO:5, and SEQ ID NO:11.
- Claim 15. (Original) The method of Claim 14, wherein the oligonucleotide is single-stranded.
- Claim 16. (Original) The method of Claim 14, wherein the oligonucleotide comprises a 5' phosphate.
- Claim 17. (Original) The method of Claim 14, wherein the oligonucleotide is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 18. (Cancelled)

- Claim 19. (Previously Presented) The method of Claim 14, wherein the composition comprises a physiologically acceptable carrier.
- Claim 20. (Previously Presented) A method of increasing DNA repair in epithelial cells, comprising applying directly to said cells an effective amount of a composition comprising pTpT.
- Claims 21-22. (Cancelled)
- Claim 23. (Previously Presented) The method of Claim 20, wherein the pTpT is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claim 24. (Cancelled)
- Claim 25. (Previously Presented) The method of Claim 20, wherein the composition comprises a physiologically acceptable carrier.
- Claim 26. (Previously Presented) A method of inhibiting proliferation of epithelial cells, comprising topically administering to said cells an effective amount of a composition comprising pTpT.
- Claims 27-28. (Cancelled)
- Claim 29. (Previously Presented) The method of Claim 26, wherein the pTpT is at a concentration of about 1  $\mu$ M to about 500  $\mu$ M.
- Claims 30-31. (Cancelled)
- Claim 32. (Previously Presented) The method of Claim 26, wherein the composition comprises a physiologically acceptable carrier.
- Claims 33-50. (Cancelled)
- Claim 51. (Previously Presented) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and

a physiologically acceptable carrier, wherein at least one said oligonucleotide has an oligonucleotide sequence consisting of SEQ ID NO: 5 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 52. (Currently Amended) The composition of Claim 51, wherein at least one ~~of~~ said ~~oligonucleotides~~ oligonucleotide comprises a 5' phosphate.

Claims 53-56. (Cancelled)

Claim 57. (Previously Presented) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:3 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 58. (Currently Amended) The composition of Claim 57, wherein at least one ~~of~~ said ~~oligonucleotides~~ oligonucleotide comprises a 5' phosphate.

Claims 59-68. (Cancelled)

Claim 69. (Currently Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3 or SEQ ID NO: 4, and wherein at least one ~~of~~ said ~~oligonucleotides~~ oligonucleotide comprises a 5' phosphate, and wherein said composition is suitable for medicinal or cosmetic use.

Claim 70. (Cancelled)

Claim 71. (Previously Presented) A method of increasing p53 activity in epidermal cells of a mammal, said method comprising topically administering an effective

amount of d(pT)<sub>2</sub>, or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO: 1 or SEQ ID NO:6 to said cells.

- Claim 72. (Previously Presented) The method of Claim 71 wherein activation of p53 results in nucleotide excision repair in the cell.
- Claims 73-74. (Cancelled)
- Claim 75. (Previously Presented) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising directly administering to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.
- Claim 76. (Previously Presented) The method of Claim 75, wherein pTpT is ultraviolet-irradiated.
- Claim 77. (Previously Presented) The method of Claim 75, wherein an effective amount of said composition is administered in a delivery vehicle.
- Claim 78. (Previously Presented) The method of Claim 77, wherein the delivery vehicle comprises liposomes.
- Claim 79. (Previously Presented) The method of Claim 77, wherein the delivery vehicle comprises propylene glycol.
- Claim 80. (Cancelled)
- Claim 81. (Previously Presented) The method of Claim 75, wherein an effective amount of said composition is administered by aerosol.
- Claim 82. (Previously Presented) The method of Claim 75, wherein the mammal is a human.

- Claim 83. (Previously Presented) The method of Claim 75, wherein the epithelial cells are carcinoma cells.
- Claim 84. (Cancelled)
- Claim 85. (Previously Presented) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin cells an effective amount of a composition selected from the group consisting of deoxynucleotides, DNA dinucleotides, DNA dinucleotide dimers and any of the foregoing combinations thereof.
- Claim 86. (Previously Presented) A method of inhibiting or reducing DNA damage in epidermal cells of a mammal, wherein said DNA damage is caused by UV irradiation, said method comprising topically administering to the cells in the mammal an effective amount of a composition comprising DNA fragments that are approximately 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof.
- Claim 87. (Cancelled)
- Claim 88. (Previously Presented) A method of inhibiting growth of malignant cells in a mammal, comprising directly administering to said cells an effective amount of DNA fragments that comprise a phosphodiester backbone and are about 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, DNA dinucleotides, DNA dinucleotide dimers and a combination of any of the foregoing.

- Claim 89. (Previously Presented) The method of Claim 85, wherein said skin cells are selected from the group consisting of: epithelial cells, melanocytes, keratinocytes and fibroblasts.
- Claims 90-92. (Cancelled)
- Claim 93. (Previously Presented) A method of increasing melanin production in epidermal cells of a mammal, said method comprising topically administering to said cells an effective amount of a composition comprising at least one single-stranded oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide consists of SEQ ID NO: 11, SEQ ID NO:1, pTpT, SEQ ID NO:5 or a functional fragment of SEQ ID No:5.
- Claim 94. (Previously Presented) A method of increasing DNA repair in skin of a mammal, comprising topically administering to the skin an effective amount of a composition comprising pTpT or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO: 1.
- Claim 95. (Previously Presented) A method of inhibiting growth of malignant skin cells of a mammal, said method comprising topically administering to said cells an effective amount of pTpT.
- Claim 96. (Cancelled)
- Claim 97. (Cancelled)
- Claim 98. (Previously Presented) The method of Claim 86, wherein the composition comprises pTpT or a single-stranded DNA fragment having a nucleotide sequence consisting of SEQ ID NO: 1 with a 5' phosphate.

- Claim 99. (Previously Presented) A method of inhibiting the growth of cells in a mammal, comprising directly administering to the cells of the mammal an effective amount of pTpT.
- Claim 100. (Previously Presented) A method of inhibiting proliferation of epithelial cells, comprising directly administering to said cells an effective amount of a composition comprising pTpT.
- Claim 101. (Previously Presented) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin an effective amount of a composition comprising at least one oligonucleotide having a DNA sequence consisting of pTpT or SEQ ID NO:1.
- Claim 102. (Previously Presented) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin of the mammal an effective amount of a composition comprising pTpT.
- Claim 103. (Previously Presented) The method of Claim 102, wherein said skin cells are selected from the group consisting of: melanocytes, keratinocytes and fibroblasts.
- Claim 104. (Previously Presented) A method of inhibiting growth of skin cells in a mammal, comprising administering to skin of the mammal an oligonucleotide having a nucleotide sequence consisting of pTpT, SEQ ID NO:1 or SEQ ID NO:6.
- Claim 105. (Previously Presented) The method of Claim 104 wherein the skin cells are keratinocytes.
- Claim 106. (Cancelled)
- Claim 107. (Cancelled)
- Claims 108-109. (Cancelled)



- Claim 110. (Previously Presented) A method of increasing melanin production in epidermal melanocytes of a mammal, said method comprising topically administering to said epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO:3 or SEQ ID NO:4.
- Claim 111. (Previously Presented) A method of inhibiting growth of malignant skin cells in a mammal, said method comprising topically administering to the skin cells an effective amount of a composition comprising at least one oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide consists of a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 6 and pTpT.
- Claim 112. (Previously Presented) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising administering by aerosol to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.
- Claim 113. (Previously Presented) A method of treating inhibiting growth of epithelial carcinoma cells in a mammal, comprising administering to the epithelial carcinoma cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.